Vol. 78, pp. 225–240 31 December 1965

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

DESCRIPTIONS OF THREE NEW SPECIES OF *BRACHORIA*, WITH NOTES ON ESTABLISHED SPECIES (DIPLOPODA, POLYDESMIDA, XYSTODESMIDAE)

By William T. Keeton[1]
Cornell University

In 1959, I published a revision of the genus *Brachoria*. At that time I recognized 25 species in the genus (plus two additional subspecies), many of them known only from the type locality. Since then, numerous additional specimens have become available for study; these specimens make possible the description of three new species, several range extensions, treatment of geographic variation within some of the species, and critical evaluation of several species and subspecies.

Most of the specimens upon which this study is based were generously loaned to me by Dr. Richard L. Hoffman, to whom my sincere thanks are extended. I am also indebted to Dr. Ralph E. Crabill, Jr. for permission to study the type specimen of *Fontaria evides* Bollman in the United States National Museum and to Mrs. Doris Ash, who aided in the preparation of some of the drawings.

Brachoria conta, new species
(Figs. 1–3)

Diagnosis: Distinguished from all other species of the genus by the form of the postcingular portion of the telopodite of the gonopod, which appears very thin when viewed medially and which, in cephalic or caudal views, is characteristically much the widest dorsoventrally at a point roughly midway between the cingulum and the apex. Does not closely resemble any other species in the genus.

Description: Length of male holotype, 43.4 mm; greatest width, 10.0 mm; L/W ratio, 4.3.

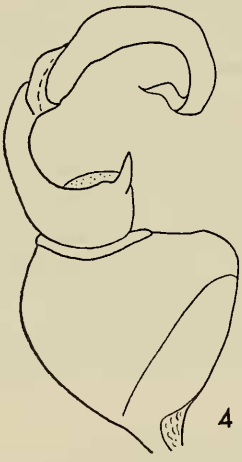
Collum subellipsoid, the posterior edges of its paranota angled slightly forward at their bases, ends of paranota rounded. Faint marginal ridges along cephalic margins of paranota, but becoming obscure on the ends of the paranota.

[1] Research supported by Grant GB-701 from the National Science Foundation.


1


2

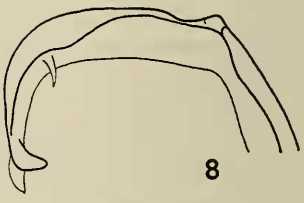

3


4


5


6


7


8

Peritremata present but much reduced on segments 2 and 3, more obvious on other segments but never prominent. Posterolateral corners of paranota rounded forward on segments 2–4, slightly angled on 5, subrectangular on 6, and produced slightly caudad on 7, becoming more strongly produced caudad on all succeeding segments.

Sternum of 3rd legs with the usual pair of contiguous medial processes; sternum of 4th legs with pair of prominent processes, narrowly separated from each other; slight elevations at bases of 5th legs, but none at bases of 6th and 7th, the sterna being shallowly concave and polished. Podosterna of postgenital legs normal, the portion between 2nd pair of legs of each segment depressed medially, forming obscure subcoxal processes on the most posterior segments.

Coxal spines absent from first 6 leg pairs, represented by a small knob on legs 7 and 8; small but definite spines on 7th legs, becoming progressively longer to segment 15, then becoming somewhat reduced on more posterior segments. Trochanteral spines prominent.

Male gonopods of medium size (telopodite arc length about 2.13 mm). Telopodite curved mesad at the cingulum, then mesodorsad distally; distal half of postcingular portion compressed anteroposteriorly; inner edge of postcingular arc irregularly curved, producing a pronounced lobe on inner margin at point approximately midway between cingulum and distal end, the postcingular consequently much the widest dorsoventrally at this point; distal end of telopodite tapering, the apex acute, no distinct solenomerite; precingular portion slightly longer than postcingular portion. Basal spine broad and heavy, its end concave, the cephalic corner acute.

Color pattern trimaculate; collection label says, "in life paranotal spots creamy yellow, median spots flesh or salmon." Note from Hoffman says, "Dark brown, paranota dull yellow, including entire lateral fourth of collum, and epiproct. A median row of big tan spots, smallest on segment 2, largest on 15 where almost touching paranotal spots; collum with large anterior median spot and small posterior one. Venter yellowish white, legs becoming yellow distally."

Type specimen: Male holotype from 5 miles W of Grayson, Carter County, Kentucky, 22 April 1961, R. W. and V. G. Barker. USNM.

←

Figs. 1–3. *Brachoria conta*, left gonopod: 1, cephalic; 2, caudal; and 3, cephalomesal views. Figs. 4–5. *Brachoria enodicuma*, left gonopod: 4, cephalic; and 5, mesal views. Figs. 6–8, *Brachoria divicuma*, left gonopod: 6, cephalic view; 7, ventrocaudomesal view; 8, caudal view showing detail of distal end of telopodite (the spine just beyond the midpoint of the postcingular portion was present in this specimen only).

Brachoria enodicuma, new species
(Figs. 4–5)

Diagnosis: Clearly related to *separanda* (Causey), *eutypa* Chamberlin, *plecta* Keeton, *hamata* Keeton, and *versicolor* Hoffman. Distinguished from the latter two by the absence of an abruptly hooked or recurved solenomerite and from *plecta* in that the portion of the telopodite just distal to the cingulum is not so noticeably thickened and does not contrast so strongly with the distal half of the postcingular portion; also distinguished from *plecta* in the shape of the telopodite. Difficult to distinguish from the very variable species *eutypa*, from which it differs in the slightly more robust postcingular telopodite, in the more extreme caudal curvature of the telopodite, and in the form of the distal end of the gonopod, which in *eutypa* is always reduced and hooklike but with the apex blunt, while in *enodicuma* it is reduced but not so hooklike and with the apex acute. Probably closely related to *separanda*, from which it is distinguished by details of the shape and curvature of the postcingular portion of the telopodite.

Description: Length of males, 38.3–39.3 mm (holotype 38.3); width, 10.5–11.0 mm (holotype 11.0); L/W ratio, 3.5–3.7 (holotype 3.5). Length of female, 36.0; width, 9.6; L/W ratio, 3.8.

Collum subellipsoid, posterior edges of paranota angled slightly forward at their bases, ends of paranota rounded but with a slight angulation forming posterolateral corner. Anterior marginal ridges moderately prominent.

Peritremata present but much reduced on segments 2–4, more obvious on other segments but never prominent. Posterolateral corners of paranota rounded on segments 2 and 3 but with hint of an angle, forming nearly a right angle on 4 and 5, produced slightly caudad on 6 and 7, becoming more strongly produced caudad on all succeeding segments.

Sternum of 3rd legs with pair of contiguous median processes; sterna of 4th and 5th legs divided by longitudinal furrows; sternum of 4th with pair of small paramedian processes, that of 5th with small mounds at bases of legs; no processes on sterna of 6th and 7th legs. Podosterna of postgenital segments relatively flat, with little, if any, evidence of subcoxal processes, even in the most posterior segments.

Coxal spines absent from pregenital legs, obscure on 8th and 9th legs, present but small on 10th and all succeeding legs. Trochanteral spines prominent.

Male gonopods of intermediate size (telopodite arc length of type about 1.97 mm). Telopodite curving mesoventrad from near its base, then mesad, then dorsad, then caudad from approximately the midpoint of postcingular portion; distal end narrowed, the apex sharp but not particularly hooklike. Basal spine moderately long, acute.

Specimens faded, color in life unknown.

Type specimens: Mountainside, 1.5 miles NE of Hodge, Jackson County, Alabama, 24 May 1961. Male holotype in USNM, male and

female paratypes in Hoffman collection, male paratype in Keeton collection.

Discussion: My first inclination was to consider this a form of the very variable *B. eutypa,* which it closely resembles. However, another collection made on the same day from a locality only a few miles from the type locality of *enodicuma* contains specimens typical of *eutypa* (see records under *eutypa*). Since the two forms are apparently sympatric, it seems necessary to recognize *enodicuma* as a full species.

Brachoria divicuma, new species
(Figs. 6–8)

Diagnosis: Easily distinguished from all other species in the genus by the curious bifurcate distal end of the telopodite of the gonopods, which is completely unlike the bifurcate condition seen in *glendalea* (Chamberlin), to which this species does not seem to be closely related. The gonopod of *B. divicuma* resembles those of such old "*Tucoria*" species as *B. calceata* (Causey) and *B. viridicolens* (Hoffman) in its small size and very sturdy construction, but the distal end is completely different from the enlarged ends of the gonopods of those two species.

Description: Length of males, 40.5–43.0 mm (holotype 42.8); greatest width, 9.8–10.4 mm (holotype 10.3); L/W ratio, 3.9–4.4 (holotype 4.2).

Collum subellipsoid, posterior edges of paranota angled forward at their bases, ends of paranota rounded. Anterior marginal ridges moderately prominent.

Peritremata present but somewhat reduced on segment 2, better developed on other segments. Posterolateral corners of paranota rounded on segments 2 and 3, slightly less rounded on 4, becoming nearly a right angle (though not sharp) on segment 5 or 6, slightly produced caudad on segment 7 and succeeding segments.

Sternum of 3rd legs with the usual processes; sternum of 4th legs with a pair of small contiguous medial processes; sternum of 5th legs depressed medially, with small mounds at bases of legs; sterna of 6th and 7th legs without processes, the 6th crossed by a horizontal ridge connecting the leg bases, the 7th slightly concave.

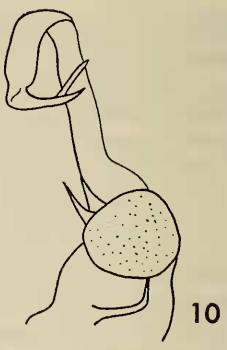
Coxal spines absent from pregenital legs but represented by a small knob on 7th, present on 8th legs and becoming larger on succeeding segments, nearly absent from last 2 legs. Trochanteral spines prominent.

Male gonopods stout but small (telopodite arc length about 1.78 mm). Telopodite curving mesoventrad to the cingulum, then mesad, then dorsad; distal half of postcingular portion becoming thinner; bifurcate distally, the anterior prong directed nearly dorsad, the posterior prong curving laterad and thus almost giving the appearance of a tooth in cephalic view; a prominent spine present on inner surface of postcingular portion at point slightly distal to its midpoint in one specimen, this spine absent in other two specimens. Basal spine short, blunt.

Color faded, but pattern was apparently trimaculate.

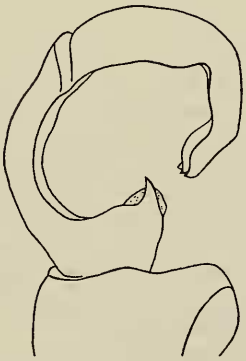
Type specimens: Mountainside, 1200 ft, 2 miles W of Jamestown,

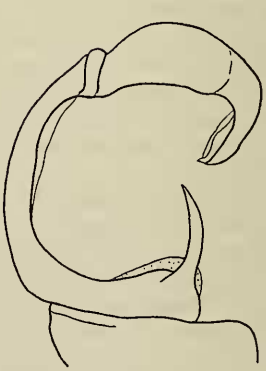

9


10


11


12


13


14

Fentress County, Tennessee, 6 June 1964, Leslie Hubricht. Male holotype in USNM, male paratypes in Keeton collection and Hoffman collection.

Discussion: This species is of special interest both because of its very distinctive gonopods and because of the variation they show with reference to the spine on the innner surface of the telopodite, which is present in one specimen and absent in two. This is more variation than would be expected in specimens from the same locality, particularly when the three pairs of gonopods are practically identical in all other respects.

Brachoria calcaria Keeton

Brachoria calcaria Keeton, 1959, Proc. U. S. Nat. Mus., 109: 15, Figs. 1d–g.

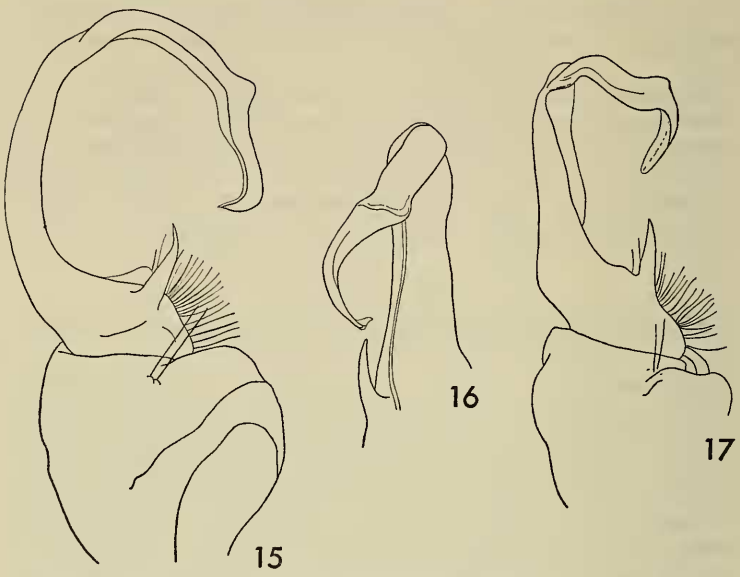
New records: West Virginia: Monroe County: 2 miles N of Ballard on W. Va. Highway 12, 14 September 1962, R. L. Hoffman, 1 male. Virginia: Montgomery County: Blacksburg, 13 January 1959, Hoffman, 1 male; 14 April 1957 and 21 May 1958, E. M. Raffensperger, 2 males; Dry Run, 5 miles NE of Blacksburg, 24–27 April 1957, Hoffman, 2 males.

Discussion: As mentioned in the original description, the diagnostic spurs on the precingular portion of the gonopod telopodite vary in number from 1 to 4. The new specimens reported here indicate that the thin flange on the postcingular portion is also variable. For example, the following combinations were found: several well-developed spurs and a prominent flange, two small spurs and a prominent flange, one very small spur and a small flange, two small spurs and no flange, one very small spur and no flange. The last specimen mentioned had such a tiny spur that at first I thought it had none, and, since it lacked a flange, it strongly resembled *B. separanda*. However the telopodite was heavier and thicker distally than is usual in *separanda*. *B. calcaria* may well prove to be only a southern form of *separanda*, although specimens from Summers and Monroe counties, West Virginia, have both spurs and the characteristically heavy *calcaria* telopodites, while *separanda* specimens from the relatively close Webster County lack spurs and have the much thinner telopodites characteristic of that species. Further collections from the area of West Virginia between the two known ranges (Fig. 28) should settle the matter.

The extreme color variability of *calcaria*, mentioned in the original description, takes on more interest with the recent description of *B. versicolor* Hoffman (1963), a related species with similar variability.

←

Figs. 9–10. *Brachoria glendalea*, left gonopod: 9, cephalic; and 10, mesal views. Figs. 11–12. *Brachoria hoffmani*, left gonopod: 11, cephalic; and 12, cephalomesal views. Figs. 13–14. *Brachoria hubrichti*, left gonopods, cephalic views: 13, specimen from Hamilton County, Tenn.; 14, specimen from Sequatchie County, Tenn.



FIGS. 15–16. *Brachoria ochra*, holotype, left gonopod: 15, cephalic; and 16, mesal views. FIG. 17. *Brachoria initialis*, holotype, left gonopod, cephalic view. FIGS. 15–17 drawn by R. L. Hoffman and published with his permission.

Brachoria eutypa eutypa Chamberlin

Brachoria eutypa Chamberlin, 1939, Bull. Univ. Utah, biol. ser., No. 3: 4, Fig. 4.

Brachoria eutypa eutypa, Keeton, 1959, Proc. U. S. Nat. Mus., 109: 21, Figs. 3a–g.

New records: ALABAMA: Jackson County: base of Sand Mt. 2 miles SE of Stevenson, 24 May 1961, L. Hubricht, 1 male. TENNESSEE: Knox County: 1 mile S of Halls Crossroads, 20 May 1961, L. Hubricht, 1 male. Unicoi County: near Davis Springs, Limestone Cove, 5 miles E of Unicoi, 18 May 1961, L. Hubricht, 1 male.

Brachoria glendalea (Chamberlin)
(Figs. 9–10)

Fontaria glendalea Chamberlin, 1918, Psyche, 25: 123.

Brachoria glendalea, Chamberlin and Hoffman, 1958, U. S. Nat. Mus. Bull. 212: 24.

Brachoria glendalea, Keeton, 1959, Proc. U. S. Nat. Mus., 109: 28, Figs. 4d–f.

New record: TENNESSEE: Bedford County: wooded hillside, 9 miles S of Shelbyville, 8 October 1960, 1 male.

Discussion: The gonopods of the specimen reported here differ from those of the type in being distally bifurcate (Figs. 9–10). The point from which the subterminal tooth arises is, however, noticeable as a small swelling in the type (see Keeton, 1959, Fig. 4f) and in the specimens from Tennessee, reported in the 1959 paper.

Brachoria hoffmani Keeton
(Figs. 11–12)

Brachoria hoffmani Keeton, 1959, Proc. U. S. Nat. Mus., 109: 31, Figs. 5d–f.

New records: KENTUCKY: Pike County: under stones on steep wooded hillside, 3 miles N of Virgie on U. S. 23, 8 April 1961, B. D. Valentine, 1 male, 2 females. VIRGINIA: Dickenson County: along Frying Pan Creek, 7.2 miles SE of Haysi on Va. Highway 80, and Crane's Nest River, approx. 5 miles W of Haysi, 21 April 1962, R. L. Hoffman, 3 males, 2 females.

Discussion: The specimens from Dickenson County, Va., are very similar to the types (from Buchanan County), but those from Kentucky show variations in the gonopod (Figs. 11–12), particularly the length of the distal half of the postcingular portion and the great development of the lobe on the inner surface of the basal half of the postcingular portion (which is only weakly developed in the type). Collection notes indicate the color in life as, "Paranotal (lateral and median) spots dark pink, legs tinged with pink, their bases pale dirty-white."

Brachoria hubrichti Keeton
(Figs. 13–14)

Brachoria hubrichti Keeton, 1959, Proc. U. S. Nat Mus., 109: 33, Figs. 5g–i.

New records: TENNESSEE: Hamilton County: Signal Mt., 30 July 1959, R. L. Hoffman, 4 males. Sequatchie County: mountain side, 5.4 miles S of Dunlap, 3 April 1960, L. Hubricht, 3 males.

Discussion: The distal portions of the gonopods of these specimens differ somewhat from the type, and they differ from each other (Figs. 13–14). The basic plan is the same in all, however, and I consider this a case of intraspecific geographical variation not worthy of nomenclatorial recognition.

Brachoria initialis Chamberlin
(Figs. 17, 19–23)

Brachoria initialis Chamberlin, 1939, Bull. Univ. Utah, biol. ser., 5: No. 3: 3, Fig. 3.

Brachoria brachypus Chamberlin, 1947, Proc. Acad. Nat. Sci. Philadelphia, 99: 26, Fig. 9.

Brachoria benderi Causey, Ent. News, 61: 193, Figs. 1–2.

Brachoria ochra initialis, Keeton, 1959, Proc. U. S. Nat. Mus., 109: 11, Figs. 1a–c.

Brachoria cedra Keeton, 1959, *ibid.*, p. 17, Figs. 2a–c. **New synonymy.**

18

19

20

21

22

23

24

25

New records: ALABAMA: Chilton County: below Lay Dam, 10 July 1960, L. Hubricht, 1 male; 7 miles E of Coopers, 10 July 1960, L. Hubricht, 1 male. Elmore County: 3.7 miles N of Wallsburg, 10 July 1960, L. Hubricht, 1 male. GEORGIA: Gordon County: wooded slope, 1.5 miles S of Oakman, 13 May 1961, L. Hubricht, 1 male, 1 female. Murray County: 5 miles NW of Fort Mountain State Park, 18 July 1961, R. E. Gordon, 1 male. MISSISSIPPI: Jefferson Davis County: upland oak woods, 8 miles S of Prentiss, 26 December 1959, L. Hubricht, 2 males, 1 female. Oktibbeha County: 9 December 1937, 1 male. TENNESSEE: Greene County: 2 miles W of Greeneville in cedar woods, 19 May 1961, R. L. Hoffman, 3 males (a note says, "black in life, with paranotal spots red or pink"). Hamilton County: wooded hillside, 3 miles NE of Sale Creek, 21 May 1961, L. Hubricht, 2 males, 3 females.

Discussion: *Brachoria initialis* is by far the most widespread species in this genus, occurring from southwest Virginia south through eastern Tennessee and northwestern Georgia into south-central Alabama and Mississippi (Fig. 27). There is considerable local variation, and this has resulted in the proposal of four different specific names which, in my judgment, are all referable to a single variable species. In my earlier paper, *initialis* and *cedra* were recognized as distinct. Study of more specimens and analysis of their variation on a geographic basis convinces me that *cedra* can no longer be maintained. (In the 1959 paper, I considered *initialis* a subspecies of *ochra*; see the discussion of *ochra* below for reasons why this was incorrect.)

The shape of the distal end of the gonopod, the distinctness of the subterminal angulation, the telopodite arc length, and the overall body proportions of *initialis* vary. As Figures 19–23 indicate, the variation in shape shows no geographic pattern and seems to reflect only differences in very local populations.

Contrary to my 1959 statement, variation in telopodite arc length is appreciable, and might seem to differentiate recognizable taxonomic entities. Particularly striking is the difference between the very small telopodites (1.3–1.5 mm) of specimens from Jefferson Davis County, Mississippi, and the unusually large ones (1.9–2.0 mm) of specimens from Greene County, Tennessee. The measurements of speci-

---

←

FIG. 18. *Brachoria electa*, left gonopod, cephalic view (included here for comparison with *B. initialis*). FIGS. 19–23. *Brachoria initialis*, left gonopods, cephalic views (to show geographic variation): 19, specimen from Chilton County, Ala.; 20, specimen from Greene County, Tenn.; 21, specimen from Jefferson Davis County, Miss.; 22, specimen from Oktibbeha County, Miss.; 23, specimen from Lee County, Ala. FIGS. 24–25. *Brachoria* species A, left gonopod: 24, cephalic view; 25, mesal view.

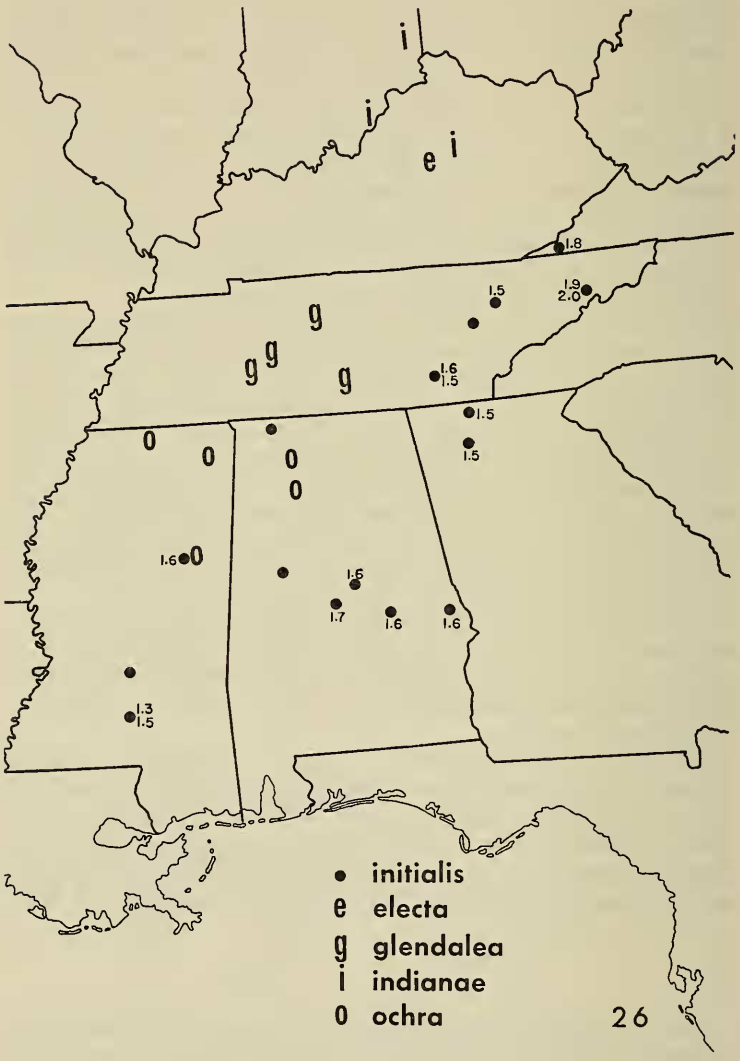


FIG. 26. Distribution of the *initialis* species group of *Brachoria*. Telopodite arc lengths for representative specimens of *B. initialis* are shown next to the symbols for that species; no clear geographic pattern for this character is evident.

mens from intervening parts of the range are intermediate. They do not, however, form a neat northeast–southwest cline, but vary in a more random fashion (Fig. 26), and no pattern deserving nomenclatorial recognition emerges. Similarly, when body proportions are plotted on a map (Fig. 27) no clear pattern is evident..

I think it likely that *B. electa* Causey (Fig. 18) is a synonym of *initialis*, but hesitate to pass judgment until specimens are available from the areas connecting the two known ranges. Both *B. ochra* and *B. glendalea* are probably closely related to *initialis*, but appear to be valid species; *ochra* is sympatric with *initialis* in Mississippi and in northwestern Alabama, and *glendalea* may be sympatric with it in central Tennessee.

The type of *B. cedra* was taken in cedar woods and the new specimens from Greene County, Tennessee, are also from cedar woods. This is a curious habitat for a member of this group of millipeds, most species of which are usually found only in deciduous forests. This matter should be investigated further.

Brachoria ochra (Chamberlin)
(Figs. 15–16)

Fontaria ochra Chamberlin, 1918, Psyche, 25: 123.
Brachoria sequens Chamberlin, 1939, Bull. Univ. Utah, biol. ser., 5: No. 3: 4, Fig. 2.
Anfractogon tenebrans Hoffman, 1948, Proc. Biol. Soc. Washington, 61: 94, Figs. 1–3. **New synonymy.**
Brachoria ochra, Chamberlin and Hoffman, 1958, U. S. Nat. Mus. Bull. 212: 25.
Brachoria tenebrans, Chamberlin and Hoffman, 1958, *ibid.*
Brachoria ochra ochra, Keeton, 1959, Proc. U. S. Nat. Mus., 109: 10.
Brachoria tenebrans, Keeton, 1959, Proc. U. S. Nat. Mus., 109: 48, Figs. 9a–d.

New records: Mississippi: Marshall County: mixed woods, 2 miles E of Slayden, 27 February 1961, L. Hubricht, 1 male, 1 female. Prentiss County: wooded hillside, 0.5 mile N of Franktown, 17 May 1964, L. Hubricht, 1 male.

Discussion: The gonopods of these specimens are much like those of the previously reported specimen of *tenebrans* from Lawrence County, Alabama, except that they are slightly slimmer distally and there is no trace of the subterminal tooth, which is weakly developed in the Lawrence County specimen and prominent in the holotype of *tenebrans*. The telopodite arc length of these specimens is also shorter than that of the type of *tenebrans*, being about 1.8 mm in Marshall County, Mississippi, as compared with 2.2 in Lawrence County and 2.5 in the type (from Winston County, Alabama). I am convinced that these slight differences between the Mississippi and Alabama specimens reflect geographic variation within a single species.

Having established that my specimens from northern Mississippi

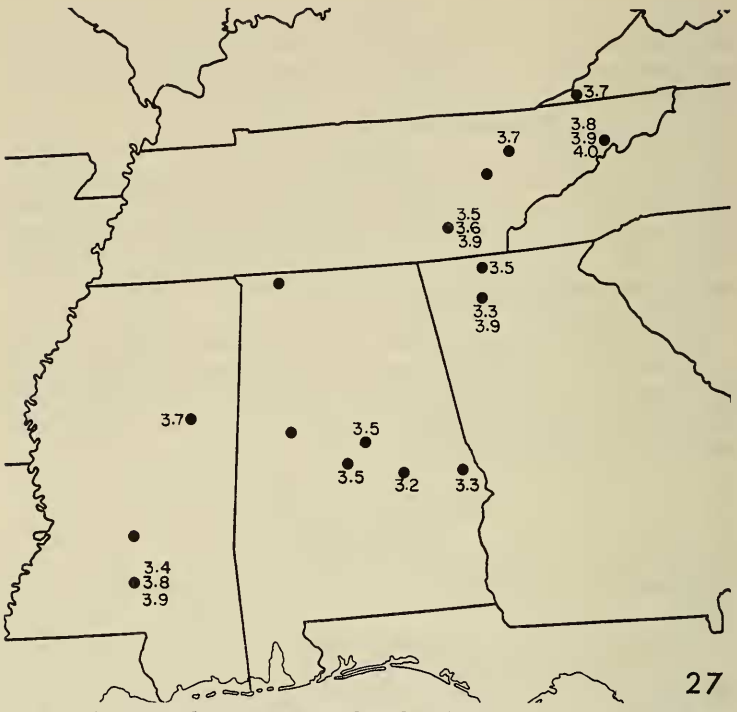


FIG. 27. Map showing geographic distribution of L/W ratio values for representative specimens of *Brachoria initialis.*

are conspecific with the type of *tenebrans,* I am forced, as a consequence, to regard *tenebrans* as a junior synonym of *ochra.* When I wrote my 1959 paper, I was unable to examine the type of *ochra* (or of its synonym *sequens*), and thus erroneously considered it to be conspecific with *initialis,* warranting at most only subspecific recognition. Recently, however, R. L. Hoffman visited Dr. Chamberlin in Utah and was able to examine the types of *ochra, sequens,* and *initialis.* He informed me (*in litt.*) that, "*ochra* is totally different from *initialis,* they clearly are not subspecies." Hoffman's conclusion is strongly supported by the drawings he prepared of the two types, which he has kindly given to me and allowed me to publish (Figs. 15–17). Hoffman's examination did confirm my synonymy of *sequens* with *ochra*; he said that their gonopods "were identical." My comparison of Hoffman's drawings of *ochra* (Figs. 15–16) with the gonopods of the specimens of *tenebrans* from northern Mississippi reveals no important differences.

As Fig. 26 shows, *ochra* and *initialis* are sympatric at the type locality of *ochra* (Oktibbeha County, Mississippi) and they are almost certainly sympatric in northwestern Alabama. This rules out the possi-

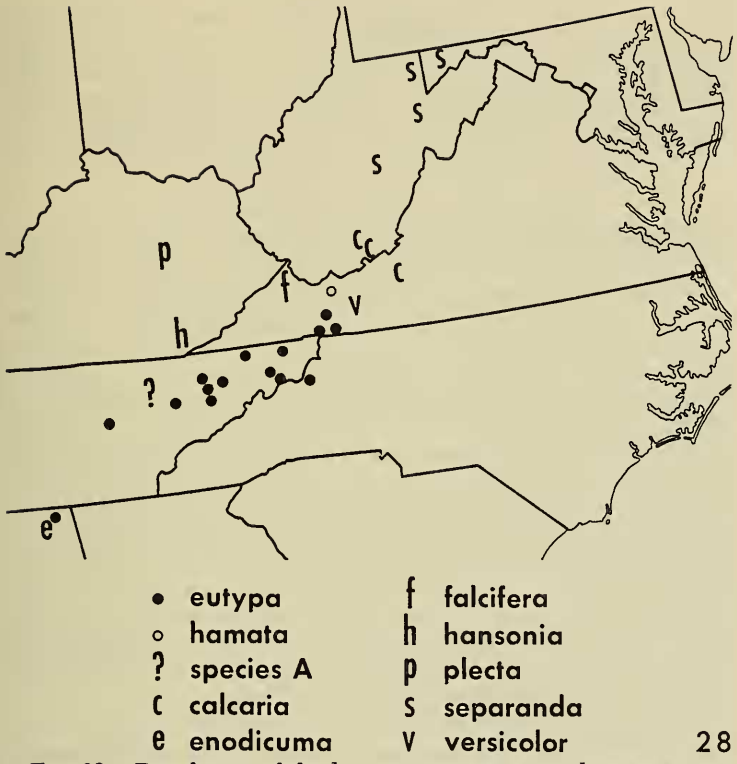


FIG. 28. Distribution of the *hansonia-eutypa-separanda* species group of *Brachoria*.

bility that they should be considered as subspecies of a single polytypic species.

Brachoria species A
(Figs. 24–25)

A single male specimen collected by Leslie Hubricht on a wooded hillside, 3 miles northwest of Caryville, Campbell County, Tennessee, shows a curious mixture of characteristics resembling *B. hansonia, B. falcifera,* and *B. eutypa,* as well as characteristics unlike any known species. The gonopod of this specimen is simple like that of *hansonia* but is more slender, and the distal end is more curved. The distal end of the telopodite forms a very slender sharp point, and lacks the blunt hooklike enlargement characteristic of *eutypa.* The general appearance of the gonopod strongly resembles that of *falcifera* in shape and dimensions, but lacks any demarcation of a sickle-shaped blade.

I hesitate to assign a name to this specimen as it may belong to any one of the three species here discussed. Furthermore, it may prove

to be an intermediate between two or more of these nominal species, such as *hansonia* and *eutypa,* and necessitate new synonymy. Or it may prove to be a new species in the complex to which the other three species belong. Only extensive collections in the area between the known ranges of *hansonia*, *eutypa*, and *falcifera* (see Fig. 28) can settle the matter by determining how each varies geographically.

Fontaria evides Bollman

Fontaria evides Bollman, 1887, Proc. U. S. Nat. Mus., 10: 621.

Discussion: *Fontaria evides* has remained unidentifiable since its description in 1887. Specimens labeled as types of *evides* have recently been found in the collection of the U. S. National Museum. One of these is a male with one gonopod; the gonopod is indistinguishable from those characteristic of *Brachoria separanda.* The type locality of *evides* is Mossy Creek (= Jefferson City), Tennessee; but the nearest known localities for *separanda* are in east-central West Virginia. Even if *calcaria* is considered a synonym of *separanda,* the distance of known *separanda* range from Jefferson City is still great, as milliped ranges go (and the *"evides"* gonopod is like typical *separanda,* not like *calcaria*). Furthermore, many days of diligent collecting around Jefferson City on numerous different occasions by Leslie Hubricht, R. L. Hoffman, and me have failed to produce a single specimen of *separanda*, but have produced specimens of *Brachoria initialis* from a neighboring county that fit Bollman's description of the color of *evides.* The situation is further confused by the fact that the USNM collection of *"evides"* contains more females than Bollman said he had.

All of these considerations cause me to hesitate from assigning *Fontaria evides* to *Brachoria* and synonymizing *separanda* with it on the basis of the USNM specimen. It seems entirely possible that specimens of *B. separanda* may have been accidentally mixed with some *evides* females, or that specimens have simply been mislabeled. On the other hand, I also hesitate from synonymizing *B. initialis* with *evides* on the basis of collections from Jefferson City; it remains possible that *separanda* may be found there some day, or that some other xystodesmid species from that locality will be shown to agree better with Bollman's description. For the present, it seems best to retain *Fontaria evides* as a *nomen inquirendum.*

Literature Cited

Bollman, C. H. 1887. Descriptions of fourteen new species of North American myriapods. Proc. U. S. Nat. Mus., 10: 617–627.

Hoffman, Richard L. 1963. A new milliped of the xystodesmid genus *Brachoria* from southwestern Virginia. Proc. Biol. Soc. Washington, 76: 223–225, 2 Figs.

Keeton, William T. 1959. A revision of the milliped genus *Brachoria* (Polydesmida: Xystodesmidae). Proc. U. S. Nat. Mus., 109: 1–58, 11 Figs.